REMARKS

The specification has been amended to correct an error in the formula of one of the terminal groups on the fluorinated polyether.

Claims 1-8 are pending in the application. Claims 1 and 3-8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Stivers et al. (EP 842980 A2) in view of Farnham et al. (US 5,134,211 A). Claim 2 stands rejected under 35 U.S.C. 102(b) or in the alternative under 35 U.S.C. 103(a) over Stivers et al. (EP 842980 A2).

Applicants' invention, as defined in claim 1, is a curable composition of a fluoroelastomer, a certain fluorinated polyether and a curing agent. The fluorinated polyether has an alcohol terminal group and a fluorinated allyl terminal group and is based on the repeating unit —$[CF_2CFH\text{-}O\text{-}R_f\text{-}CF_2CH_2O]_n$— . There are three C-H bonds in each repeating unit. Applicants have discovered that these polyethers have improved compatibility with fluoroelastomers that contain repeating units having C-H bonds, e.g. fluoroelastomers that contain repeating units of vinylidene fluoride, ethylene or propylene. As shown in the Examples, the instant compositions have better low temperature properties (i.e. lower T_g and lower TR-10) than do similar compositions, absent the fluorinated polyether. Yet, unlike prior art *perfluorinated* polyethers, most of the polyether employed in Applicants' claimed invention remains in the fluoroelastomer compositions, even when the compositions are heat aged at 250°C for 168 hours or when exposed to jet fuel for 168°C at room temperature (see weight change values reported in Tables III and IV, pages 16 & 17).

Stivers et al. discloses curable fluoroelastomer compositions that employ fluorinated polyethers of either Class I: $Z\text{-}Q\text{-}R_f\text{-}O\text{-}(R_{fo})_n\text{-}R_f\text{-}Q\text{-}Z$, or Class II: $Z\text{-}Q\text{-}R_f\text{-}O\text{-}(R_{fo})_n\text{-}R_f$, wherein Z is a primary amino group or non-fluorinated allyl group that is reactive with the fluoroelastomer; Q is a divalent linking group; R_f is a non-branched, C_1-C_{20} perfluoroalkylene group; R_{fo} is a perfluoroalkyleneoxy group; n is between 0 and 30; and R_f' is a non-branched, C_1-C_{10} fluoroalkyl group (page 3, line 56- page 4, line 21). Thus, while the non-repeating Q and R_f' may contain C-H bonds, the repeating unit (R_{fo}) does not.

Stivers et al.'s fluorinated polyethers contain many fewer C-H bonds along the polyether chain (due to a lack of C-H bonds in the repeating unit R_{fo}) than does the polyether contained in Applicants' claimed composition. Thus, Stivers' polyether cannot be as compatible with fluoroelastomers as is the polyether employed in Applicants' claimed invention. Nothing in Stivers teaches or suggests that a polyether having a plurality of C-H

bonds along its chain length would be more compatible (i.e. less fugitive) in fluoroelastomer compositions than the polyethers disclosed in Stivers, while also improving the low temperature properties of the composition.

Farnham et al. discloses the polyether that is employed in Applicants' claimed composition. The polyethers are said to be useful as lubricants, lubricant precursors, macromonomers and coatings (col. 5, lines 32-33). It is not disclosed or suggested that Farnham et al.'s polyethers could be employed in a fluoroelastomer composition as a non-fugitive additive for improving the low temperature sealing properties of the composition.

35 U.S.C. 103(a) Rejection of Claims 1 and 3-8:

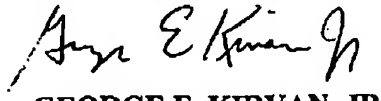
As mentioned above, Stivers et al. neither teach nor suggest that a polyether having a plurality of C-H bonds along its chain length and having an alcohol terminal group would be more compatible (i.e. less fugitive) in fluoroelastomer compositions than the polyethers disclosed in Stivers, while still improving the low temperature properties of the composition. Farnham et al. neither teach nor disclose that their polyether could be employed in a fluoroelastomer composition as a non-fugitive additive for improving the low temperature sealing properties of the composition. There is no motivation to combine the teachings of the two references in order to obtain Applicants' claimed invention. Thus, Applicants respectfully traverse the 103(a) rejection of claims 1 and 3-8.

35 U.S.C. 102(b) Rejection and Alternative 103(a) Rejection of Claim 2:

As explained above, the compositions disclosed in Stivers et al. contain a significantly different fluorinated polyether than the polyether employed in the instant invention. The polyether employed in Applicants' invention does not have a terminal primary amino or non-fluorinated allyl group. The Stivers et al. polyether lacks a plurality of C-H bond in its repeat units along the polymer chain. Due to these differences, Stivers et al. cannot anticipate claim 2 of the instant application. Furthermore, nothing in Stivers et al. teaches or suggests that a fluorinated polyether having an alcohol terminal group and a repeating unit that contains several C-H bonds would be less fugitive in fluoroelastomer compositions than the polyethers disclosed in Stivers et al., while still improving the low temperature properties of the composition Thus, Applicants respectfully traverse both the 102(b) and 103(a) rejections of claim 2 of the instant invention.

In view of the above remarks, Applicants believe that claims 1-8 are patentable and that the application is in condition for allowance. Reconsideration is requested.

Respectfully Submitted,



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